

MEMORANDUM FOR RECORD

SUBJECT: Minutes of Bridging Demonstration and meeting at the Directorate of Combat Developments Conference Room between Maneuver Support Center, Fort Leonard Wood, MO and the University of Missouri-Rolla, Rolla, MO, 7 July 2000

1. PURPOSE: To document the discussions of the meeting.

2. ATTENDEES:

Mr. Nicholas. Berring	UMR-LCCT	314-544-5228
SFC. Ronald. Carter	MANSCEN DCD-PIO	573-596-0131 ext 37121
Mr. Robert. Clarke	MANSCEN DCD-Safety	573-596-0131 ext 37346
Dr. Alan. Davison	MANSCEN-HRED	573-563-4008
Mr. Vernon. Lowrey	MANSCEN-BL	573-563-7149
Mr. John. McCalmon	MANSCEN DCD-EN-Bridging	573-596-0131 ext 35422
CW3. Rickey. Miller	MANSCEN DCD-EN	573-596-0131 ext 3-7980
Dr. Susan. Murray	UMR-LCCT	314-544-5228
Dr. John. Myers	UMR-CIES/CE	573-341-6618
Dr. Antonio. Nanni	UMR-CIES	573-341-4497
Mr. Brad. Pettijohn	MANSCEN DCD-PIO	573-563-6189
Dr. Merrill. Stevens	MANSCEN-BL	573-563-5219
Ms. Danielle. Stone	UMR-CIES	573-341-6699

3. BACKGROUND:

a. The group met at the DCD office and departed for the demonstration part of the meeting. The purpose was to give everyone an overview and a hands-on look at current military bridging capabilities:

(1) Arrived at TA-250 for a look at the Army's Ribbon Bridge. Mr. McCalmon gave an overview of the uses and capabilities features. CW3 Miller expressed a concern for maintenance issues. He explained the process of repairing and identifying deficiencies. Dr. Nanni asked questions where composite materials could be used and the benefits or drawbacks from using them.

(2) At TA-211 the group saw Fixed and Dry-span Bridging capabilities such as the Bailey Bridge and the Medium Girder

ATZT-CDP

SUBJECT: Minutes of Bridging Demonstration and meeting at the Directorate of Combat Developments Conference Room between Maneuver Support Center, Fort Leonard Wood, MO and the University of Missouri-Rolla, Rolla, MO, 7 July 2000

Bridge (MGB). Here the group discussed the possibility of using composite materials for different pieces of the bridges to lighten the bridge and at the same time strengthening it. Dr. Davison mentioned here is the greatest concern for injuries to soldiers and personnel building or removing the bridge. The weight and number of pieces required to build a bridge promotes strain on the body.

(3) The final demonstration was an Armored Vehicle Launched Bridge (AVLB) at the 5th Engineer Battalion Motor Pool. Here the group saw the tank mounted bridge launched and retrieved. Again Mr. McCalmon gave an overview of the capabilities and uses. This type of bridging is primarily used for assault crossings. The WOLVERINE was discussed as the replacement to this style bridging. Members got to move around on top of and inside of the vehicle to get a better understanding of the system.

b. The group then convened in the DCD conference room at 10:30 am. Mr. McCalmon gave an overview of MANSCEN, the Engineer School, the Directorate of Combat Developments and then bridging programs.

c. Dr. Murray gave an overview of the Lemay Center for Composites Technology, operated by the University of Missouri-Rolla; located in St. Louis.

(1) Mission: Within the domain of composites technology, promote technology transfer between the Department of the Navy, and/or other Federal agencies and the commercial and industrial community in order to enhance operational effectiveness, increase technology awareness and improve work force quality.

(2) Goals:

(a) Develop and provide training in the area of composites manufacturing, logistics and process improvements for the people of all skill levels.

ATZT-CDP

SUBJECT: Minutes of Bridging Demonstration and meeting at the Directorate of Combat Developments Conference Room between Maneuver Support Center, Fort Leonard Wood, MO and the University of Missouri-Rolla, Rolla, MO, 7 July 2000

(b) Apply these processes to develop better materials for the industries focused on infrastructure and manufacturing.

(c) Incubate new business that will use composite materiel technology.

(3) Dr. Murray explained the process of pultrusion as fibers being pulled through preformers creating composite strands. Composites are defined as two or more combined materials. They have characteristics superior to the original materials through flexibility, lighter weight, corrosion resistance, and life cycle cost savings. She showed some examples of different fiber strands and two cylinders; one made of steel and the other made of composites. Also shown were slides of a composite bridge that will be placed on the campus of the University of Missouri-Rolla and a house made of composites.

d. Ms. Danielle Stone, Doctoral Candidate in Civil Engineering at UMR, gave an overview of the composite bridges being installed at St. James, Missouri. She explained there are four concrete slab bridges to be replaced with four different applications of composites. Anticipated benefits are to demonstrate the effective use of Fiber Reinforced Polymer (FRP), verify the long-term durability and performance of FRP materials, and illustrate the efficiency of the systems, particularly in terms of a reduction in installation time. Each of the four bridges will vary in design; three Glass FRP Bridges will use lateral FRP panels on steel stringers, longitudinal FRP panels on steel stringers, and a full-depth longitudinal FRP panels, the last bridge is FRP-Reinforced Concrete.

4. CONCLUSIONS AND RECOMMENDATIONS:

a. Information about what was occurring here at Fort Leonard Wood, the University of Missouri-Rolla, and the Lemay Center for Composites Technology was shared and discussed.

ATZT-CDP

SUBJECT: Minutes of Bridging Demonstration and meeting at the Directorate of Combat Developments Conference Room between Maneuver Support Center, Fort Leonard Wood, MO and the University of Missouri-Rolla, Rolla, MO, 7 July 2000

b. The University of Missouri-Rolla indicated that they could put sensors inside a bridge to tell the load on the bridge and how many crossings of that load occurred on the bridge, this kind of information could be useful to operational units.

c. The Bailey Bridge and Medium Girder Bridge are both very heavy lifting burdens on soldiers when the bridges are assembled. UMR indicated that they could probably make composites panels for FLW to asses. The MANSCEN personnel need to determine if this type of work effort could occur through the CEP process or some other science and technology effort.

d. Smaller collaborative work projects in which UMR could help solve technical Army problems needs to be explored.



RONALD S. CARTER
SFC, USA
Program Integration Office,
Directorate of Combat Developments